CLAIMS

1. A network card of a rack system, comprising:

a bus interface adapted to connect to a backplane bus of the rack system;

a data interface adapted to transmit data signals through the bus interface onto the backplane bus; and

a controller adapted to periodically generate bandwidth allocation signals indicating allocation of time slots of the backplane bus, and transmitting the allocation signals through the bus interface on the backplane bus, on same bus lines used by the data interface.

2. A network card according to claim 1, wherein the controller receives need indications from other cards of the rack system through the bus interface and generates the bandwidth allocation signals responsive to the received need indications.

3. A network card according to claim 1 or claim 2, wherein the controller performs the allocation repeatedly in predetermined intervals.

4. A network card according to any of claims 1-3, wherein the controller performs the allocation repeatedly in intervals of between about 0.125 msec and 1 msec.

5. A network card according to any of the preceding claims, wherein at least two of the allocated time slots have different sizes.

6. A network card according to any of the preceding claims, wherein the controller allocates slots with a size granularity of less than 20 bytes.

7. A network card according to any of the preceding claims, wherein the backplane bus comprises a standard TDM Telecom bus.

8. A network card according to any of the preceding claims, wherein the allocation signals comprise packets that relate to a plurality of slots.

9. A network card according to any of the preceding claims, wherein the bus interface includes an Ethernet physical layer interface.

10. A network card according to any of the preceding claims, wherein the data interface is adapted to receive signals on the allocated time slots.

11. A network card according to claim 10, wherein the data interface is adapted to receive signals in accordance with a plurality of different formats.

12. A network card according to claim 10, comprising a data distributor adapted to forward the received signals according to their format.

13. A network card according to claim 12, wherein the data distributor identifies the format of received signals by examining a header of an encapsulation packet of the signals.

14. A network card according to claim 12, wherein the data distributor identifies the format of received signals according to the slot in which they were received.

15. A network card according to any of the preceding claims, wherein the controller is adapted to allocate the entire bandwidth of the bus.

16. A network card according to any of claims 1-14, wherein the controller is adapted to allocate less than the entire bandwidth of the bus.

17. A network card of a rack system, comprising:

a bus interface adapted to connect to a backplane bus of the rack system;

a data interface adapted to transmit data signals through the bus interface onto the backplane bus; and

a controller adapted to periodically generate bandwidth allocation signals indicating allocation of time slots of variable size of the backplane bus, and transmitting the allocation signals through the bus interface on the backplane bus.

18. A network card according to claim 17, wherein the controller allocates time slots with a granularity smaller than 20 bytes.

19. A network card according to claim 17 or claim 18, wherein the controller allocates time slots with a granularity smaller than 2 bytes.

20. A network card according to any of claims 17-19, wherein the data interface is adapted to receive signals on the allocated time slots.

21. A network card according to claim 20, wherein the data interface is adapted to receive signals in accordance with a plurality of different formats.

22. A network card according to claim 21, wherein the signals of the plurality of different formats are encapsulated in packets of a single format.

23. A network card of a rack system, comprising:

a link interface adapted to connect to a backplane link of the rack system;

a data interface adapted to receive data signals through the link interface from the backplane link;

a network bus interface for transmitting data signals received by the data interface onto a network bus; and

a controller adapted to generate control signals regulating the use of the backplane link, for transmission to other cards connected to the backplane link, the control signals being timed responsive to the bandwidth of the network bus, such that the signals received by the data interface can be forwarded onto the network immediately upon receipt without queuing.

24. A network card according to claim 23, wherein the network card does not include a buffer for more than currently handled signals received by the data interface.

25. A network card according to claim 23 or claim 24, wherein the backplane link comprises a bus.

26. A network card according to claim 23 or claim 24, wherein the backplane link comprises a star.

27. A line card of a rack system, comprising:

a bus interface adapted to connect to a backplane bus of the rack system;

a memory unit for buffering data signals;

an input interface adapted to receive control signals which relate to the order in which signals are to be extracted from the memory unit, from a unit external to the line card; and

a data interface adapted to transmit data signals from the memory unit onto the bus interface in an under determined from the received control signals.

28. A line card according to claim 27, wherein the memory unit stores data signals in a plurality of queues which differ in their transmission priorities.

29. A line card according to claim 27 or claim 28, wherein the memory unit stores data signals in a plurality of queues which differ in the signal formats they store.

30. A line card according to any of claims 27-29, wherein the control signals indicate from which queue data signals are to be transmitted.

31. A line card according to any of claims 27-30, wherein the data interface is adapted to transmit signals relating to the amount or types of data currently in the memory.

32. A line card according to any of claims 27-31, wherein the input interface receives the control signals over the backplane bus.

33. A rack system, comprising:

a backplane bus;

at least one line card, connected to the backplane bus, which includes a memory unit for queuing data signals; and

a network card, connected to the backplane bus, which controls the order in which signals are transmitted from the memory unit over the backplane bus.

34. A rack system according to claim 33, wherein the network card does not include an uplink buffer.

35. A method of transmitting signals on a backplane bus, comprising:

receiving signals in a plurality of formats, by a first card connected to the backplane bus;

encapsulating at least some of the signals into a format allowing large packets of a size above 500 bytes, by the first card;

transmitting the encapsulated signals to a second card connected to the backplane bus; and

removing the encapsulation from at least some of the encapsulated signals, by the second card.

36. A method according to claim 35, wherein the plurality of formats include at least one of the TDM format, the ATM format and the token ring format.

37. A method according to claim 35 or claim 36, wherein the encapsulating includes adding a header.

38. A method according to any of claims 35-37, wherein the encapsulating includes encapsulating into the Ethernet format.

39. A method according to any of claims 35-38, wherein the first card comprises a line card and the second card comprises a network card.

40. A method according to any of claims 35-39, comprising forwarding the signals from which the encapsulation was removed, onto a network link.

41. A method according to any of claims 35-40, comprising adding an encapsulation to the signals forwarded onto the network link.

42. A method of upgrading a rack system, comprising:

providing a rack system including at least one network card and at least one line card, which operate in accordance to a single signal format;

replacing the network card with a network card that supports operation in accordance with a plurality of formats; and

adding one or more line cards which operate in accordance with a method allowing transmission in accordance with a plurality of formats, while leaving in the rack system one or more of the at least one single format line card.

43. A method according to claim 42, wherein the single signal format comprises the TDM format.

44. A method according to claim 42, wherein the single signal format comprises the Ethernet format.

45. A method of transmitting signals between a line card and a network card, comprising:

transmitting data signals from the network card to a line card over a downlink communication link;

transmitting allocation signals indicating allocation of time slots of the communication link, on same link lines used for transmitting the data signals; and

transmitting data signals from the line card to the network card in time slots allocated to the line card in the allocation signals.

46. A method according to claim 45, wherein the communication link comprises a backplane bus.

47. A method according to claim 45, wherein the line card and the network card are not included in a same rack.